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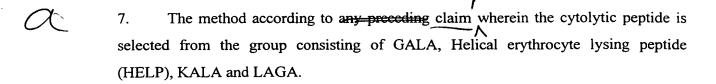


## **CLAIMS**

- 1. A method of detecting a cell type of interest present or potentially present in a sample comprising treating the sample with lipid vesicle particles which are targeted to the cell type to be detected, said particles incorporating a cytolytic peptide that modulates the permeability of the particles in response to a predetermined metabolic signal from the targeted cell, if present in the sample, said particles further incorporating a species which is activated on said modulation of permeability, and monitoring directly or indirectly for the species.
- 2. The method according to claim 1 wherein the particles comprise a binding agent capable of binding the particle to the cell type of interest when the particle is targeted thereto.
- 3. The method according to claim 2 wherein the binding agent is an antibody for binding to an antigen on the cell type of interest.
- 4. The method according to any preceding claim wherein a portion of said particles have a first binding moiety and a further portion have a second binding moiety which is capable of binding with said first binding moiety whereby said particles are, or are capable of being, aggregated together.
- 5. The method according to claim 4 wherein a collection of particles are aggregated around a cell to be detected.
- 6. The method according to claim 4 so wherein the binding moiety on some particles is avidin or a derivative thereof and the binding moiety on other particles is biotin or a derivative thereof.

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8. The method according to any one of claims 1-6-wherein the cytolytic peptide is N, Myristic-GALA.

9. The method according to any one of claims 1 - 6 wherein the cytolytic peptide is selected from the group consisting of Amphotericin B, Alamethicin, Gramicidin, Melittin, Nigericin, P25, Polymixin B and Valinomycin and Vibriolsin.

10. The method according to any preceding claim wherein the species is a dye.  $\Lambda$ 

11. The method according to any one of claims 1 - wherein the species is an enzyme.

12. The method according to claim 11, wherein the enzyme is alkaline phosphatase, β-Galactosidase or asparaginase, or glucose oxidase.

13. The method according to any one of claims 1 - 9 wherein the species is a co-factor or substrate for an enzyme.

The method according to any preceding claim—wherein the cells to be detected are pathogenic cells.

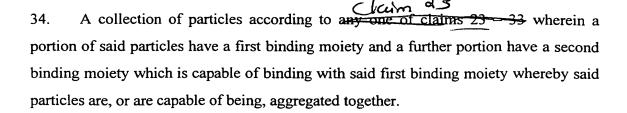
- 15. The method according to claim 14 for analysing foodstuff for the presence of pathogenic cells.
- 16. The method according to claim 14 for analysing water samples for the presence of pathogenic cells.

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- 17. The method according to claim 14 for detecting the presence of pathogenic cells in the human or animal body.
- 18. A method of treating a cell type of interest comprising applying lipid vesicle particles to the cell type of interest, said particles being targeted to the cell type of interest and incorporating a cytolytic peptide that modulates the permeability of the particles in response to a predetermined metabolic signal from the targeted cells, said particles further incorporating a species which is activated on said modulation of permeability and which modulates the activity of said cell type of interest.
- 19. The method according to claim 18 wherein the particle is a particle as defined in any one of claims 2-9.
- 20. The method according to claim 18 or claim 19 for treatment of pathogenic cells.
- 21. The method according to claim 20, wherein the treatment is the removal of pathogenic cells from a water source.
- 22. The method according to any one of claims 18—21 wherein the cell is a bacterium.
- 23. A lipid vesicle particle capable of being targeted to a cell type of interest, said particle incorporating a cytolytic peptide which is responsive to a predetermined metabolic signal from the targeted cell so as to modulate the permeability of the particle, said particle further incorporating a species to be targeted to the cell which is activated on said modulation of permeability.
- 24. The particle according to claim 23, wherein the particle has an outer lipid bilayer and the metabolic signal modulates the permeability of the lipid bilayer.

- 25. The particle according to claim 23 et claim 24 wherein the particle is a liposome.
  - 26. The particle according to any one of claims 23 25 wherein the peptide is one selected from the group consisting of GALA, Helical erythrocyte lysing peptide (HELP), KALA and LAGA.
  - 27. The particle according to any one of claims 23 = 25 wherein the peptide is N, Myristic-GALA.
  - 28. The particle according to any one of claims 23 = 25 wherein the peptide is one selected from the group consisting of Amphotericin B, Alamethicin, Gramicidin, Melittin, Nigericin, P25, Polymixin B and Valinomycin and Vibriolsin.
  - 29. The particle according to any one of claims 23 28 wherein the species is an enzyme.
  - 30. The particle according to claim 29 wherein the enzyme is alkaline phosphatase, β-Galactosidase or asparaginase, or glucose oxidase.
- a 31. The particle according to any one of claims 23 28 wherein the species is a cofactor or substrate for an enzyme.
  - 32. The particle according to any one of claims 23 = 31 wherein the particle comprises an antibody for targeting to an antigen on a cell.
  - 33. The particle according to any one of claims 23 wherein the particle further comprises a binding moiety for binding to other particles.



- 35. A collection of particles according to claim 34 wherein the first binding moiety is avidin or a derivative thereof and the second binding moiety is biotin or a derivative thereof.
- An aggregate comprising a collection of particles according to claim 34 or claim 35.
- 37. An aggregate comprising a plurality of lipid vesicle particles according to 23 ene of claims 23 = 33 wherein a portion of said particles have a first binding moiety and a further portion have a second binding moiety capable of binding with said first binding moiety whereby said particles are aggregated together.
- 38. A lipid vesicle particle capable of being targeted to a cell type of interest, said particle incorporating a cytolytic peptide which is responsive to a predetermined metabolic signal from the targeted cell so as to modulate the permeability of the particle, said particle further incorporating a therapeutically effective amount of a species to be targeted to the cell which is activated on said modulation of permeability, for use in the treatment of medical conditions.
- 39. The particle according to claim 38 wherein the particle is a particle according to any one of claims 2-9 for use in the treatment of medical conditions.
- 40. The particle according to claim 38 for use in the treatment of cancer.



